

REMARKS

Reconsideration of the application in view of the amendments above and remarks below is respectfully requested.

I. Status of the Claims

Claims 1-6 and 8 are herein cancelled without prejudice or disclaimer of the substantive matter therein and retaining the right to prosecute in a future continuation application.

Claim 7 is herein amended. Support for these amendments can be found in, for example, claims 1 and 8, page 3, paragraph [0038] and paragraph [0044].

Claim 9 is herein amended to depend on claim 7 as claim 8 was canceled without prejudice or disclaimer.

New claims 12 to 15 were added. Support for these new claims is found, for example, page 3, paragraphs [0033] and [0043], and in the Examples section of the specification.

Claim 3 is herein cancelled without prejudice or disclaimer of the substantive matter therein and retaining the right to prosecute in a future continuation application.

Thus, claims 7, and 9 -15 are currently pending. Reconsideration of the pending claims in view of the following remarks is respectfully requested. No new matter is added by way of the present amendments and entry is respectfully requested.

II. Claim Rejections under 35 U.S.C. § 103(a)

US 20010038802 and U.S. Patent No. 6,001,150

Claims 1, 2, 4, 5, 6, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ozaki *et al.* (US 20010038802) in view of McCall *et al.* (U.S. Patent No. 6,001,150). Applicants respectfully traverse.

Applicants have canceled claims 1 to 6 without prejudice or disclaimer. Cancellation of these claims is not to be construed as surrender of any subject matter. Applicants hereby reserve the right to pursue the canceled or amended subject matter in one or more continuation or divisional applications. Thus the Examiner's rejections with respect to claims 1, 2, 4, 5 and 6 are moot.

Amended claim 7 is now directed, *inter alia*, to a warm molding method comprising: attaching a powder consisting of a hydroxyl fatty acid salt having an average particle diameter of 50 μm or less on a forming surface of a mold, and using a warm molding raw material powder in powder metallurgy, the warm molding raw material powder comprising a lubricant which consists of a hydroxyl fatty acid salt having an average particle diameter of from 5 μm to 100 μm in a range of from 0.3 wt% to 2 wt%.

In contrast, Ozaki *et al.* (US 2001/0038802A1), describes a lubricant for die lubrication used during compaction pressure of a powder with a die while the lubricant is adhered by electrification to the surface of the die, the lubricant consisting of a mixed powder of at least two different lubricants each having a melting point higher than a predetermined temperature of the compaction pressure. See, for example, claim 1 of Ozaki *et al.*

With respect to McCall *et al.* (6,001.150), McCall *et al.* describes a novel composition of matter for the manufacture of a sintered metal article comprising a sinterable mixture consisting essentially of a metal powder and a lubricant, said lubricant being present in an amount of 0.1% to 5%, by weight, said lubricant comprising a mixture of boric acid and at least one other powder metallurgy lubricant, said boric acid in said mixture providing improved processing characteristics in said manufacture.

The Examiner alleges the following in the Office Action:

"Ozaki *et al* teach the lubricant can be at least one kind of lubricant having a melting point higher than a predetermined temperature of the compaction pressure, the at least one lubricant can be metallic soaps such as lithium stearate and lithium hydroxystearate. Ozaki *et al* particularly teaches using only lithium hydroxystearate as the high melting temperature solid lubricant in the amount of 0.3% by weight in Table 1-2, Compact No. 13."

The Examiner further alleges:

Concerning claims 8-10, Ozaki *et al* also teaches a warm molding method wherein a mixed of powder of at least two kinds of lubricants, each having a melting point higher than a predetermined temperature for the compaction pressure, is applied to the wall of a preheated die before filling the die with the iron-based mixed powder. See, [0043] and [0045]. Note that the limitation "powder of hydroxy fatty acid salt" requires that it contains the name lubricant but does not exclude other type of lubricant.

As the Examiner alleges above, Ozaki *et al.* describes that 100% by weight of lithium hydroxystearate is used as the lubricant for powder molding in iron-based mixed powder in Compact No. 13 of Tables 1-2. However, Ozaki *et al.* lies in the use of a lubricant for die lubrication which is comprised of a mixed powder of at least two kinds of lubricants each having a melting point higher than a predetermined temperature of the compaction pressure.

Applicants note that the use of one kind of lubricant for die lubrication is consciously excluded in Ozaki *et al.* Ozaki *et al.* describes that since "only one kind of lubricant for die lubrication is applied by coating, the shape of the lubricant changes near its melting point so that the function of lubricating changes to a great extent and accordingly, there has been a problem in that the range of the compacting temperature is restricted by the melting point of the lubricant used." (Page 1, paragraph [0012]).

In order to improve the above problems, Ozaki *et al.* uses a lubricant consisting of a mixed powder of at least two kinds of lubricants each having a melting point higher than a predetermined temperature of the compaction pressure. In contrast, claim 7 as amended in the present application, a powder comprising a hydroxyl fatty acid salt is attached on a forming surface of a mold, and a lubricant which comprises a hydroxyl fatty acid salt is used as the lubricant for the warm molding raw material powder. That is, in the present invention, even if one kind of lubricant is used, excellent lubricating properties and pressing properties can be achieved with no deterioration of the flowing property. Therefore, claim 7 clearly has a different constitution from Ozaki *et al.* in this regard.

The effects achieved by claim 7, include, for example: in a conventional case where the lithium stearate is mixed in a lubricant, there is a problem such that, if the raw material powder is heated at a temperature of 150°C. or more, the flowing property of the raw material powder deteriorates, in spite of a melting point of the lithium stearate which is about 220°C. In addition, there is a problem in that sufficient lubricating and pressing properties cannot be obtained by using the lithium stearate (paragraph [0003]).

Furthermore, the present invention cannot be deemed obvious over Ozaki *et al* in view of McCall *et al*, in that the instant invention improves the above problems by using a hydroxy stearic acid salt alone as the lubricant for the warm molding raw material powder and as the lubricant attached on the surface of the mold. Accordingly, such effects can be achieved that the flowing property of the raw material powder does not deteriorate at a time of heating even at a temperature of 150°C. to 190°C., and also higher lubricating and pressing properties can be obtained at a time of pressing-molding, as compared with conventional cases of using lithium stearate. Furthermore, the lubricating property between the mold and the raw material powder can be improved (paragraphs [0043] and [0044]).

As described above, claim 7 has a clearly different constitution from Ozaki *et al.*, and has a distinguished effect by the constitution. Therefore, even if McCall *et al.* teaches a solid lubricant for compacting metal powder preferably having particle size below about 100 microns, it cannot be considered that claim 7 would have been obvious. For these reasons, Applicants believe that claim 7 of the present invention is non-obvious over McCall and Ozaki, whether taken singly or in combination, and therefore respectfully request reconsideration and that the rejection be withdrawn.

Claims 9 to 11 and 12-15 directly or indirectly depend on claim 7. As described above, claim 7 is patentable over Ozaki *et al.*, in view of McCall *et al.*, and thus these claims too, should also be allowable.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants believe that the application is in condition for allowance and earnestly solicit same.

If the Examiner believes there are any remaining issues which can be resolved by an Examiner's Amendment or a Supplemental Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Although, Applicants believe that no further extensions of time are required with submission of this paper, Applicants request that this submission also be considered as a petition for any further extensions of time if necessary. The Commissioner for Patents and Trademarks is hereby authorized to charge the amount due for any retroactive extensions of time and any deficiency in any fees due with the filing of this paper or credit any overpayment in any fees paid on the filing or during prosecution of this application to Deposit Account No. 04-0100.

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